CHIME/BUZZER WARNING SYSTEMS

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GENERAL INFORMATION

INTRODUCTION

A chime warning system is standard factory-installed equipment on this model. Refer to 8W-44 - Interior Lighting or 8W-45 - Central Timer Module in Group 8W - Wiring Diagrams for complete circuit descriptions and diagrams.

CHIME WARNING SYSTEM

The chime warning system provides an audible warning to the driver under the following conditions:

- ABS lamp illumination
- Airbag indicator lamp illumination
- Check gauges lamp illumination
- Door is ajar with vehicle in motion
- Driver side seat belt is not fastened with the ignition switch in the On position
- Head or park lamps are turned on with the ignition switch Off and the driver side front door open
- Key is in the ignition switch with the ignition switch Off and the driver side front door open
- Low fuel warning lamp illumination - less than about one-eighth tank of fuel remaining
- Low washer fluid warning lamp illumination
- Transmission oil temperature warning lamp illumination.

Following are general descriptions of the major components in the chime warning system. Refer to the owner's manual in the vehicle glove box for more information on the features, use and operation of the chime warning system.

DESCRIPTION AND OPERATION

CENTRAL TIMER MODULE

Two versions of the Central Timer Module (CTM) are available on this vehicle, a base version and a high-line version. The base version of the CTM is used on base models of the vehicle. The base version of the CTM combines the functions of a chime/buzzer module and an intermittent wipe module into a single unit. The base CTM also uses inputs from the door ajar switches, the headlamp switch and the key-in ignition switch to control the output to the dome lamp circuits, which allows the base CTM to provide load shedding to help protect the battery from becoming discharged.

The high-line version of the CTM is used on high-line vehicles. The high-line CTM provides all of the functions of the base version CTM, but also is used to control and integrate many of the additional electronic functions and features included on the high-line models. The high-line version of the CTM contains a central processing unit and interfaces with other modules in the vehicle on the Chrysler Collision Detection (CCD) data bus network.

The CCD data bus network allows the sharing of sensor information. This helps to reduce wire harness complexity, reduce internal controller hardware, and reduce component sensor current loads. At the same time, this system provides increased reliability, enhanced diagnostics, and allows the addition of many new feature capabilities.

One of the functions and features that both versions of the CTM support is the chime warning system. The CTM contains a chime tone generator to perform the functions of the chime warning module. The CTM uses hard-wired switch inputs, internal

DESCRIPTION AND OPERATION (Continued)

programming, and a hard-wired chime request input from the instrument cluster circuitry to detect when a chime tone is required.

Both versions of the CTM are mounted under the passenger side end of the instrument panel, outboard of the instrument panel glove box opening. Refer to Central Timer Module in the Removal and Installation section of Group 8E - Instrument Panel Systems for the service procedures.

This group covers the diagnosis and service of only the hard-wired inputs used by the CTM to determine that a chime tone should be generated. See Central Timer Module in the Diagnosis and Testing section of this group for diagnosis of the base version of the CTM. For diagnosis of the high-line version of the CTM or of the CCD data bus, a DRBIII® scan tool and the proper Diagnostic Procedures manual are recommended. The CTM cannot be repaired and, if faulty or damaged, it must be replaced.

INSTRUMENT CLUSTER

The instrument cluster is an electromechanical unit that contains integrated circuitry and internal programming to perform a variety of functions. The instrument cluster circuitry monitors hard-wired switch inputs, as well as message inputs received from other vehicle electronic modules on the Chrysler Collision Detection (CCD) data bus network.

The instrument cluster uses these many inputs along with its internal programming to provide hard-wired chime tone requests to the Central Timer Module (CTM), which performs the functions of the chime warning module on this model. The instrument cluster circuitry also has a self-diagnostic capability. Refer to Instrument Cluster in the Diagnosis and Testing section of Group 8E - Instrument Panel Systems for more information on this feature.

The only instrument cluster diagnosis found in this group consists of confirming the viability of the hard-wired chime request circuit between the instrument cluster circuitry and the CTM, and diagnosis of the hard-wired seat belt switch input to the instrument cluster. For diagnosis of the CCD data bus and the data bus message inputs, a DRB scan tool and the proper Diagnostic Procedures manual are recommended.

Refer to Instrument Cluster in the Removal and Installation section of Group 8E - Instrument Panel Systems for the instrument cluster service procedures. Refer to the Diagnosis and Testing section of Group 8E - Instrument Panel systems for more information on the remaining hard-wired instrument cluster inputs. The instrument cluster chime warning circuitry cannot be repaired and, if faulty or damaged, the instrument cluster assembly must be replaced.

DRIVER DOOR AJAR SWITCH

The driver door ajar switch is integral to the driver side front door latch. The switch closes a path to ground for the Central Timer Module (CTM) when the driver door is opened, and opens the ground path when the driver door is closed.

The driver door ajar switch cannot be repaired and, if faulty or damaged, the door latch unit must be replaced. Refer to Group 23 - Body for the door latch service procedures.

KEY-IN IGNITION SWITCH

The key-in ignition switch is integral to the ignition switch, which is mounted on the right side of the steering column. It closes a path to ground for the Central Timer Module (CTM) when the ignition key is inserted in the ignition lock cylinder and the driver door ajar switch is closed (driver door is open). The key-in ignition switch opens the ground path when the key is removed from the ignition lock cylinder. The ground path is also opened when the driver door ajar switch is open (driver door is closed).

The key-in ignition switch cannot be repaired and, if faulty or damaged, the entire ignition switch must be replaced. Refer to Group 8D - Ignition Systems for the service procedures.

HEADLAMP SWITCH

The headlamp switch is located in the instrument panel, outboard of the steering column. It closes a path to ground for the Central Timer Module (CTM) when the park or head lamps are on and the driver door ajar switch is closed (driver door is open). The headlamp switch opens the ground path when the headlamp switch is turned off. The ground path is also opened when the driver door ajar switch is open (driver door is closed).

The headlamp switch cannot be repaired and, if faulty or damaged, it must be replaced. Refer to Headlamp Switch in the Removal and Installation section of Group 8E - Instrument Panel Systems for the service procedures.

DRIVER SEAT BELT SWITCH

The driver seat belt switch is integral to the driver seat belt retractor assembly. The driver seat belt switch is normally closed, providing a ground signal to the instrument cluster when the ignition switch is in the On or Start positions.

The seat belt switch monitors the amount of seat belt webbing wound onto the seat belt retractor spool. When the seat belt tip-half webbing is pulled out of the retractor far enough to engage the seat belt buckle-half, the switch opens the seat belt switch sense circuit.

DESCRIPTION AND OPERATION (Continued)

The driver seat belt switch cannot be repaired and, if faulty or damaged, the entire driver seat belt and retractor unit must be replaced. Refer to Group 23 - Body for the service procedures.

DIAGNOSIS AND TESTING

CENTRAL TIMER MODULE

Before testing the Central Timer Module (CTM) for an inoperative chime function, be sure to test the hard-wired switch and instrument cluster chime request circuits as described in this group. For circuit descriptions and diagrams, refer to 8W-45 - Central Timer Module in Group 8W - Wiring Diagrams.

NOTE: The following tests may not prove conclusive in the diagnosis of the high-line version of the Central Timer Module (CTM). The most reliable, efficient, and accurate means to diagnose the high-line CTM requires the use of a DRB scan tool and the proper Diagnostic Procedures manual.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Check the fuses in the junction block. If OK, go to Step 2. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(2) Check for battery voltage at the fuse in the junction block. If OK, go to Step 3. If not OK, repair the open circuit to the Power Distribution Center (PDC) as required.

(3) Disconnect and isolate the battery negative cable. Remove the CTM from its mounting bracket to access the CTM wire harness connectors. Refer to Central Timer Module in the Removal and Installation section of Group 8E - Instrument Panel Systems for the procedures.

(4) Unplug the wire harness connectors from the CTM. Check the wire harness connectors and the receptacles in the module for loose, corroded, or damaged terminals and pins. If OK, go to Step 5. If not OK, repair as required.

(5) Probe the ground circuit cavity of the 14-way CTM wire harness connector and check for continuity to a good ground. On the high-line version of the CTM, repeat the check between the ground circuit cavity of the 18-way CTM wire harness connector and a good ground. In each case, there should be continuity. If OK, go to Step 6. If not OK, repair the open circuit(s) to ground as required.

(6) Connect the battery negative cable. Check for battery voltage at the fused B(+) circuit cavity of the 14-way CTM wire harness connector. If OK, go to Step 7. If not OK, repair the open circuit to the junction block as required.

(7) Turn the ignition switch to the On position. Check for battery voltage at the fused ignition switch output (run/start) circuit cavity of the 14-way CTM wire harness connector. On the high-line version of the CTM, repeat the check at the fused ignition switch output (run/accessory) circuit cavity of the 18-way CTM wire harness connector. If OK, replace the faulty CTM. If not OK, repair the open circuit from the CTM to the junction block as required.

DRIVER DOOR AJAR SWITCH

For circuit descriptions and diagrams, refer to 8W-45 - Central Timer Module in Group 8W - Wiring Diagrams.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Rotate the headlamp switch knob counterclockwise to ensure that the dome lamps are not switched off. Open the driver door and note whether the interior lamps light. They should light. If OK, see Key-In Ignition Switch and/or Headlamp Switch in the Diagnosis and Testing section of this group. If not OK, go to Step 2.

(2) Disconnect and isolate the battery negative cable. Unplug the driver door latch wire harness connector. Check for continuity between the ground circuit cavity in the body half of the driver door latch wire harness connector and a good ground. There should be continuity. If OK, go to Step 3. If not OK, repair the circuit to ground as required.

(3) Check for continuity between the driver door ajar switch ground circuit terminal and the driver door ajar switch sense circuit terminal of the driver door latch wire harness connector. There should be continuity with the driver door open, and no continuity with the driver door closed. If OK, go to Step 4. If not OK, replace the faulty latch.

(4) Remove the Central Timer Module (CTM) from its mounting bracket to access the CTM wire harness connectors. Refer to Central Timer Module in the

DIAGNOSIS AND TESTING (Continued)

Removal and Installation section of Group 8E - Instrument Panel Systems for the procedures. Unplug the 14-way CTM wire harness connector. Check for continuity between the driver door ajar switch sense circuit cavity of the 14-way CTM wire harness connector and a good ground. There should be no continuity. If OK, go to Step 5. If not OK, repair the short circuit as required.

(5) Check for continuity between the driver door ajar switch sense circuit cavities of the 14-way CTM wire harness connector and the driver door latch wire harness connector. There should be continuity. If OK, see Key-In Ignition Switch and/or Headlamp Switch in the Diagnosis and Testing section of this group. If not OK, repair the open circuit as required.

KEY-IN IGNITION SWITCH

For circuit descriptions and diagrams, refer to 8W-40 - Instrument Cluster or 8W-44 - Interior Lighting in Group 8W - Wiring Diagrams.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable. Remove the steering column shrouds. Refer to Group 8D - Ignition Systems for the procedures. Unplug the key-in ignition switch wire harness connector from the ignition switch.

(2) Check for continuity between the key-in ignition switch sense and ground terminals of the key-in ignition switch. There should be continuity with the key in the ignition lock cylinder, and no continuity with the key removed from the ignition lock cylinder. If OK, go to Step 3. If not OK, replace the faulty ignition switch assembly.

(3) Open the driver door. Check for continuity between the ground circuit cavity of the key-in ignition switch wire harness connector and a good ground. There should be continuity. If OK, go to Step 4. If not OK, repair the open circuit to the driver door ajar switch as required.

(4) Remove the Central Timer Module (CTM) from its mounting bracket to access the CTM wire harness connectors. Refer to Central Timer Module in the Removal and Installation section of Group 8E - Instrument Panel Systems for the procedures. Unplug the 14-way CTM wire harness connector. Close the driver door. Check for continuity between the key-in ignition switch sense circuit cavity of the CTM wire harness connector and a good ground. There should be no continuity. If OK, go to Step 5. If not OK, repair the short circuit as required.

(5) Check for continuity between the key-in ignition switch sense circuit cavities of the key-in ignition switch wire harness connector and the 14-way CTM wire harness connector. There should be continuity. If OK, test the CTM as described in this group. If not OK, repair the open circuit as required.

HEADLAMP SWITCH

For circuit descriptions and diagrams, refer to 8W-45 - Central Timer Module in Group 8W - Wiring Diagrams.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable. Remove the headlamp switch from the instrument panel. Refer to Headlamp Switch in the Removal and Installation section of Group 8E - Instrument Panel Systems for the procedures. Unplug the headlamp switch wire harness connectors. Check for continuity between the driver door ajar switch sense circuit cavity of the headlamp switch wire harness connector and a good ground. There should be continuity with the driver door open, and no continuity with the driver door closed. If OK, go to Step 2. If not OK, repair the circuit to the driver door ajar switch as required.

(2) Remove the Central Timer Module (CTM) from its mounting bracket to access the CTM wire harness connectors. Refer to Central Timer Module in the Removal and Installation section of Group 8E - Instrument Panel Systems for the procedures. Unplug the 14-way CTM wire harness connector. Remove the key from the ignition lock cylinder. Check for continuity between the key-in ignition switch sense circuit cavity of the 14-way CTM wire harness connector and a good ground. There should be no continuity. If OK, go to Step 3. If not OK, repair the short circuit as required.

(3) Check for continuity between the key-in ignition switch sense circuit cavities of the 14-way CTM wire harness connector and the headlamp switch wire harness connector. There should be continuity. If OK, go to Step 4. If not OK, repair the open circuit as required.

DIAGNOSIS AND TESTING (Continued)

(4) Check for continuity between the driver door ajar switch sense circuit terminal and the key-in ignition switch sense circuit terminal of the headlamp switch. There should be no continuity with the switch in the Off position, and continuity with the switch in the park or head lamps On position. If OK, see Central Timer Module in the Diagnosis and Testing section of this group. If not OK, replace the faulty headlamp switch.

DRIVER SEAT BELT SWITCH

For circuit descriptions and diagrams, refer to 8W-40 - Instrument Cluster or 8W-44 - Interior Lighting in Group 8W - Wiring Diagrams.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable. Unplug the wire harness connector from the driver seat belt retractor. Check for continuity between the circuit cavity in the body half of the driver seat belt switch wire harness connector and a good ground. There should be continuity. If OK, go to Step 2. If not OK, repair the open circuit as required.

(2) Check for continuity between the two cavities in the seat belt half of the driver seat belt switch wire harness connector. There should be no continuity with the seat belt webbing retracted, and continuity with the seat belt webbing pulled out of the retractor far enough to engage the seat belt buckle. If OK, go to Step 3. If not OK, replace the faulty driver side seat belt and retractor assembly.

(3) Remove the instrument cluster from the instrument panel. Check for continuity between the seat belt switch sense circuit cavities of the instrument cluster wire harness connector (connector B) and the body half of the driver seat belt switch wire harness connector. There should be continuity. If OK, see Instrument Cluster in the Diagnosis and Testing section of this group for diagnosis of the chime request circuit. If not OK, repair the open circuit as required.

INSTRUMENT CLUSTER

Before performing this test, see Driver Seat Belt Switch in the Diagnosis and Testing section of this group, and Instrument Cluster in the Diagnosis and Testing section of Group 8E - Instrument Panel Systems. For circuit descriptions and diagrams, refer to 8W-40 - Instrument Cluster or 8W-45 - Central Timer Module in Group 8W - Wiring Diagrams.

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(1) Disconnect and isolate the battery negative cable. Remove the instrument cluster from the instrument panel. Refer to Instrument Cluster in the Removal and Installation section of Group 8E - Instrument Panel Systems for the procedures.

(2) Remove the Central Timer Module (CTM) from its mounting bracket to access the CTM wire harness connectors. Refer to Central Timer Module in the Removal and Installation section of Group 8E - Instrument Panel Systems for the procedures. Unplug the 14-way CTM wire harness connector.

(3) Check for continuity between the chime request circuit cavity of the 14-way CTM wire harness connector and a good ground. There should be no continuity. If OK, go to Step 4. If not OK, repair the short circuit as required.

(4) Check for continuity between the chime request circuit cavities of the 14-way CTM wire harness connector and the instrument cluster wire harness connector (connector B). There should be continuity. If OK, test the CTM as described in this group. If not OK, repair the open circuit as required.

REMOVAL AND INSTALLATION

CHIME WARNING SYSTEM SWITCHES

Service procedures for the various hard-wired switches used in the chime warning system can be found in the Removal and Installation section of the proper group, as follows:

- Driver door ajar switch - refer to Group 23 - Body for the door latch service procedures
- Driver seat belt switch - refer to Group 23 - Body for the seat belt retractor service procedures
- Headlamp switch - refer to Headlamp Switch in the Removal and Installation section of Group 8E - Instrument Panel Systems
- Key-in ignition switch - refer to Group 8D - Ignition Systems for the ignition switch service procedures.